Closed Cell Spray Foam: A Cost-Effective Solution for Home Insulation

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Background information

- Married to Cara (12 years), children Jillian (7), Ryan (4)
- Purdue University graduate
- Production Manager of regional production builder 7 years
- Owner Green Goose Homes 5 years
- Certified Green Professional, Certified Graduate Builder, Indiana Builders Association State Director, Past president Builders Association of Greater Lafayette
What does Green Goose do?

- Custom Homes
- Remodeling/renovations
- Light commercial
Green Goose “Green Building”

- All our homes are certified Green by the National Association of Homebuilders (NAHB)
- What does Green mean?
  - Site usage
  - Resource Efficiency
  - **Energy Efficiency**
  - Water Conservation
  - Indoor air quality
Energy Efficiency

- HVAC
- Windows/Doors
- Building envelope & Insulation
Whole House Approach

1. Low E argon filled windows
2. R-45 attic insulation
3. Spray foam insulation at box sill
4. Dow Structural Insulated sheathing
5. Comprehensive home sealing
6. Engineered window and door headers, floor system, subfloor and trusses
7. Energy Star appliances
8. Energy Star lighting/CTEs
9. No VOC paints
10. Low flow plumbing fixtures
11. Programmable thermostats
12. Merv 8 furnace filter
13. Radon system
14. High efficiency HVAC and water heating systems
15. Corn based carpet
16. Recycled content interior doors
17. Fiberglass exterior doors
18. Blown wall insulation
19. Engineered subfloor
20. Insulated ductwork
21. Insulated garage door
Sealing the envelope

- Foam
  - Exterior penetrations
  - Around windows and doors
  - Behind Electrical Boxes
  - Box sill
  - Exterior walls

- Caulk
  - Bottom plates
  - Top plates
  - Where walls come together
  - Holes to attic
  - Penetrations in drywall
  - Can lights to ceiling
Sealing the envelope
Sealing the envelope
Why seal the envelope?

- Comfort
- Quiet
- Lack of drafts
- Lower operating costs
Why seal the envelope?

![Bar chart showing energy savings for Gas Heat and Heat Pump compared to Typical Construction and Sealed Home]

- Typical Construction
- Sealed Home
- Savings

- Gas Heat
- Heat Pump
Why spray foam?

- It performs!
  - It stops air infiltration and provides great R-Value
  - Our homes typically have less than 2 air changes/hr
  - On the HERS index our projects typically score between 0-50
Why spray foam?

- It has a broad range of applications
  - New construction (box sills, exterior walls, attic)
  - Remodeling
Why spray foam?

RENEWW House
Why spray foam?

- **Cost**

<table>
<thead>
<tr>
<th>Insulation/Sheathing method</th>
<th>Price/SF</th>
<th>Stated R-Value</th>
<th>Price/R</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blown cellulose with Dow SIS Sheathing</td>
<td>$2.15</td>
<td>20.5</td>
<td>$0.10</td>
</tr>
<tr>
<td>3/4&quot; closed cell spray foam with R-13 batt &amp; OSB Sheathing</td>
<td>$1.77</td>
<td>18</td>
<td>$0.10</td>
</tr>
<tr>
<td>R-15 HD batt with DOW SIS Sheathing</td>
<td>$1.93</td>
<td>20.5</td>
<td>$0.09</td>
</tr>
</tbody>
</table>
Why spray foam?

- It is easy to sell
Building with Spray Foam

- Questions?